ITRONIX®

TECHNICAL NOTE	Number	527
DATE: 14-Jul-00	Issue	1

TITLE:	FS/2 Memory Corruption
ABSTRACT:	Potential memory corruption during hardware reset

It has been observed that under certain circumstances the process of performing a Hardware Reset (shift+shift+Pwr) on the FS/2 can result in memory corruption. This corruption takes the form of either single or multiple bytes being changed (most often set to FF Hex), and their original contents being lost. The corruption generally affects memory locations in the range 512K to 576K, and for this reason it is unlikely to affect users whose units are formatted to 640K for DOS executable memory, as this space is always reconfigured following a reboot and the subsequent reloading of the application. On the units formatted to less than 640K for DOS the affected portion of memory is used as disk, and the result is that disk data is corrupted. This corruption will not be immediately apparent, and is only seen when the particular region of disk space is accessed. This may be some considerable time after the reset was performed.

The susceptibility of individual units varies, and the possibility of an error is increased by holding the reset key sequence for extended periods of time.

The condition does NOT occur under software reset (CTRL+ALT+DEL).

It is important to note that a hardware reset is a last resort in recovering from a crash condition, and would not normally be encountered in the day to day operation of the computer. It is strongly advised not to release reset information to the end users of the product. Generally, use of a hardware reset would indicate that either a hardware or software error had occurred in normal use.

As explained above, an FS/2 formatted to 640k of conventional memory will not suffer disk corruptions after a hardware reset and any corruption in this area will be corrected when the application is reloaded from disk. However, it should be noted that a hardware reset can interrupt a disk access or prevent files from being closed. Therefore the contents of Disk RAM should not be assumed. Following the removal of all necessary data, it is recommended that the unit should be re-formatted and it's application software reloaded prior to it being returned to it's operator.

It should not be assumed that hardware resetting is the cause of all memory corruption's. As with any PC the data integrity should be questioned following a reboot of any kind. In the event of a reset, MS-DOS is unable to complete disk access operations which can result in data loss. Below is a list of the most common events that can result in data loss:

1. Use of CTRL+ALT+DEL during execution of the application. Note that this mechanism can be disabled by the application software.

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2. Hardware reset (in addition to the failure mode outlined above).

3. Soft Reset by the application software (Use of INT19H).

4. Misexecution of the application software.

To recap after any reset the unit should be re-formatted and it's application software loaded as soon as possible to avoid any further memory corruption.

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